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# **Sleep Disturbances in U. S. Soldiers Returning from Wartime Deployment: Preliminary Findings**

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14. ABSTRACT <b>Over one million U. S. military personnel have been deployed since 2001 in support of overseas operations in Iraq and Afghanistan. The deployment environment is filled with uncertainty and a heightened sense of awareness for survival that may impact sleep quality. Epidemiologic studies have identified sleep disturbances (SD) as both a risk factor for and a manifestation of psychiatric and physical problems. Research on deployed military personnel has focused on the prevalence of psychiatric problems but few data are available on the extent of disturbed sleep that may place soldiers at risk both for psychiatric and physical morbidity. The frequency of SD and associated factors in U. S. soldiers were assessed at two different time points after return from deployment. Method: A convenience sample of 58 U. S. soldiers (ages 23?58 years) completed the Pittsburgh Sleep Quality Index (PSQI), Post Deployment Health Assessment, perceived stress scale, and combat exposure scale immediately upon return from deployment (PD1) and 1.5 months later (PD2).</b>					
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## Authors:

☒ 1. The authors do not have any potential conflicts of interest to disclose

☐ 2. The authors wish to disclose the following potential conflicts of interest:

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# INTRODUCTION

- **Current deployment environment<sup>1</sup>**
- **Potential for sleep disturbances (SD)**
- **Comorbidity<sup>2, 3</sup>**
- **Focus on mental health prevalence**
- **Overlooked and not examined**
- **Little data on SD and factors/risks**

<sup>1</sup> Hoge et al (2004), <sup>2</sup> Breslau et al (1996), <sup>3</sup> Ohayon et al (1998)

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# PURPOSE

- **To assess prevalence of and identify factors associated with SD in Army soldiers post deployment (PD) in support of OEF or OIF:**
  - PD1 = initial assessment
  - PD2 = 1 ½ months later



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# METHODS

- **Design: A descriptive/comparative study at 2 time points**
  - **Soldier Readiness Processing Site**
  - **Sleep Survey**
  - **Approved by IRBs**
  - **Analysis**
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# PARTICIPANTS

- **PD1: n = 58 & PD2: n = 29**
  - **Age: 35 yrs**
  - **Gender: 70% male**
  - **Rank: 70% enlisted**
  - **Race: 88% White/Caucasian**
  - **Marital Status: 70% married**
  - **Service Component: 60% Active Duty**
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# PREVALENCE

	PD1 n = 58		PD2 n = 29	
PSQI >5, n (%)	50 (86%)		25 (86%)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
PSQI Global Score	10.4	4.0	11.4	4.6
Hours of Sleep Before Deployment	7.3	1.2	7.3	1.3
Hours of Sleep After	5.8	1.5	5.5	1.3
Sleep Quality Before Deployment	0.9	0.7	1.0	0.7
Sleep Quality After	1.7	1.7	2.0	0.8

PSQI = Pittsburgh Sleep Quality Index

# DIFFERENCES FROM PD1 TO PD2

	PD1 n = 29	PD2 n = 29		
	Md	Md	z	p
PSQI Global Score	11.5	12.0	-0.71	0.52
Sleep Quality	2	2	-0.83	0.58
<b>Sleep Latency</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>0.77</b>
Sleep Duration	2	2	-0.28	1.0
Sleep Efficiency	1	1	-0.46	0.55
Sleep Disturbances	2	2	-0.33	1.0
<b>Medication Usage</b>	<b>1</b>	<b>0</b>	<b>-1.71</b>	<b>0.27</b>
<b>Daytime Dysfunction</b>	<b>1</b>	<b>2</b>	<b>-2.50</b>	<b>0.02*</b>

Note. Analysis conducted using the Paired Signed Rank Test for differences.  
PSQI = Pittsburgh Sleep Quality Index

# DESCRIBE FACTORS

## Sleep History and Psychological Factors

	<b>PD1 n = 58</b>	<b>PD2 n = 29</b>
<b>Personal History Yes, n (%)</b>	<b>26 (45)</b>	<b>16 (55)</b>
<b>Family History Yes, n (%)</b>	<b>9 (15)</b>	<b>4 (14)</b>
<b>PTSD Score, <i>M</i> (<i>SD</i>)</b>	<b>0.6 (1.2)</b>	<b>1.0 (1.5)</b>
PTSD $\geq 2$ , n (%)	10 (18)	8 (28)
<b>Depression Score, <i>M</i> (<i>SD</i>)</b>	<b>1.3 (1.5)</b>	<b>2.1 (1.7)</b>
Depression $\geq 3$ , n (%)	7 (13)	4 (14)
<b>Alcohol Score, <i>M</i> (<i>SD</i>)</b>	<b>0.1 (0.3)</b>	<b>0.3 (0.7)</b>
Alcohol Problems, n (%)	1 (2)	4 (14)
<b>Perceived Stress Scale, <i>M</i> (<i>SD</i>)</b>	<b>17.6 (7.8)</b>	<b>15.3 (8.4)</b>

PTSD = Post Traumatic Stress Disorder

# DESCRIBE FACTORS

## Physical Illness/TBI and Combat Exposure

	PD1 n = 58	PD2 n = 29
Symptoms of PI, <i>M (SD)</i>	2.5 (3)	6.8 (5.0)
TBI Yes, n (%)	3 (5)	2 (7)
TBI Score, <i>M (SD)</i>	0.3 (0.9)	--
Symptoms of TBI, <i>M (SD)</i>	1.0 ( 1.3)	2.6 (1.6)
Combat Exposure Scale, <i>M (SD)</i>	7.7 (7.5)	8.5 (6.4)
>Moderate, n (%)	8 (14)	3 (10)

PI = Physical Illness, TBI = Traumatic Brain Injury

# CORRELATIONS

Adjusted for Age, Gender, and Rank

	PD1 n = 58 PSQI Global Score	PD2 n = 29 PSQI Global Score
Race	-0.10	0.34
Marital Status	0.13	-0.17
Service Component	0.10	0.25
Personal History	<b>0.48**</b>	<b>0.42**</b>
Family History	0.09	-0.28

\* < 0.05 \*\* < 0.01

PSQI = Pittsburgh Sleep Quality Index

# CORRELATIONS

Adjusted for Age, Gender, and Rank CONT.

	PD1 n = 58 PSQI Global Score	PD2 n = 29 PSQI Global Score
PTSD Score	0.08	0.21
Depression Score	<b>0.34*</b>	0.31
Alcohol Score	0.26	0.18
Perceived Stress Scale	<b>0.49**</b>	0.36
Symptoms of PI	<b>0.38**</b>	<b>0.41*</b>
Symptoms of TBI	<b>0.44**</b>	<b>0.42*</b>
Combat Exposure Scale	0.17	0.05

\* < 0.05 \*\* < 0.01. PSQI = Pittsburgh Sleep Quality Index, PTSD = Post Traumatic Stress Disorder, PI = Physical Illness, TBI = Traumatic Brain Injury

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# CONCLUSIONS

- High prevalence of SD at initial time point and 1 ½ months later
  - High association between SD and personal history, symptoms of PI and TBI
  - Early identification and timely referral
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# ?? and comments

